

Hobbies

WEEKLY

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GIFT DESIGN FOR TWO
NOVELTY SWINGING
BIRD TOYS

April 19th, 1950

Price Fourpence

Vol. 110 No. 2842

A SUBSTANTIAL piece of work, this, which no reader need be ashamed for his friends to see. It is of generous capacity, large enough for a pair of rabbits and their litter. Provided with legs it will stand firm in all weathers, alternatively the legs can be omitted and the hutch supported on brackets, screwed to the walls of shed or house, as preferred.

If rabbits are to keep healthy they should be housed warm and dry, and even the tyro at rabbit keeping will appreciate the difference between living in a hutch of this description, and one knocked up from a grocer's box.

Main Framework

A front and side elevation are given in Fig. 1. From these drawings general dimensions can be taken. Should the rabbits be of the large breed, it may be

an advantage to extend the length of the hutch to 3ft. 6ins.; other dimensions can still stand.

Fig. 2 shows a view of the construction. The sides and bottom will be made up of two boards, joined together. Wood of $\frac{3}{4}$ in. for preference, $\frac{1}{2}$ in. if thicker stuff is not available. These thicknesses apply to all parts except those stated further on.

The sides are joined by a 1in. square fillet across the bottom, on the inside,

this fillet being raised from the bottom edge just enough to allow the floor of the hutch to be screwed to it and be level underneath. In other words, if the floor is of $\frac{3}{4}$ in. wood, then the fillets will also be $\frac{3}{4}$ in. up from the bottom.

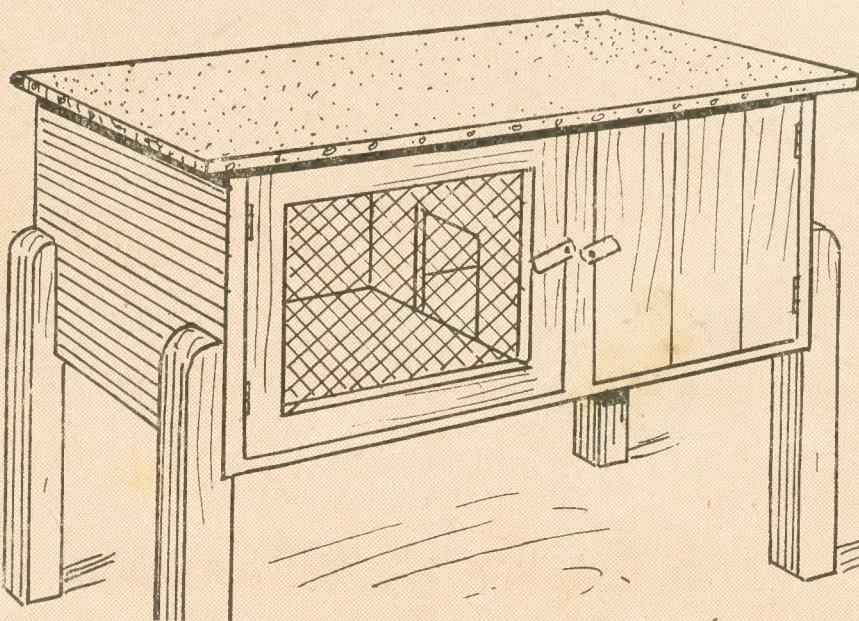
Centre Partition

It will be seen from the drawings that the top edges of the sides slope towards the rear. Across the top of the hutch a 1in. by 2in. batten is nailed at the front and a 1in. square one at the back.

Between these, a fillet is screwed across each side to keep the boards together. All these will be seen in Fig. 2.

At 12ins. from the left side, two vertical strips of wood are to be nailed between the top rails and the floor of the hutch, to which the partition will be nailed. The front one is of 1in. by 2in. wood; the back one of 1in. square wood.

These are nailed to a line (shown by a dash and dotted one) just 12ins. from the left side. As the rear one is half the width of the front one, the partition can be nailed to the former and will then butt up against the front one, leaving room for a fillet of wood, which can be nailed to the front



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vertical and the partition nailed to that.

Partition Wall

In Fig. 2 the partition is shown partly cut away to reveal this. The partition could very conveniently be cut from plywood, and should be 1in. less in length than the depth of the hutch.

In this saw out an opening for the rabbits to enter, one about 6ins. wide and 8ins. high will suit quite well. If the partition is made up of two thinner boards, joined together, the hole should have a fillet nailed each side to prevent the boards breaking apart where the hole is cut.

These legs should be of substantial timber, say, 2in. square wood, or even a bit stouter. Cut them to the length given in Fig. 1, and those parts to be screwed to the sides of the hutch should be reduced in thickness by $\frac{1}{2}$ in., as in Fig. 2. Fix the legs to the hutch with iron screws, from the inside, well countersunk. The back of the hutch can then be nailed in place.

Two doors are required. That of the keeping apartment is composed of boards, nailed to rear battens. To keep out unwanted draughts the boards should be, if possible, of tongued and grooved kind. Otherwise it would be as

or iron battens to the centre vertical strip of wood. Round off the top corners of the legs and clean up the work. The whole can then be painted or given a coat of creosote. In either case it is as

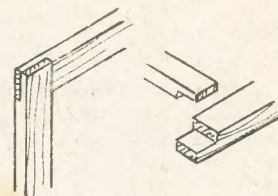


Fig. 3—Corner joints to use

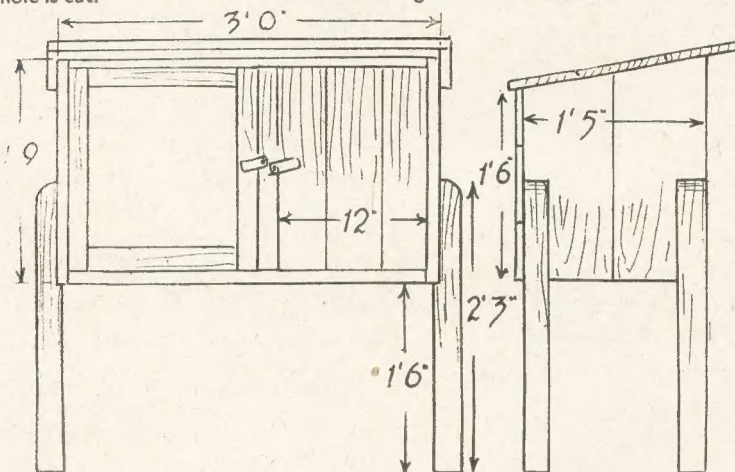


Fig. 1—Front and side elevation giving dimensions of main parts

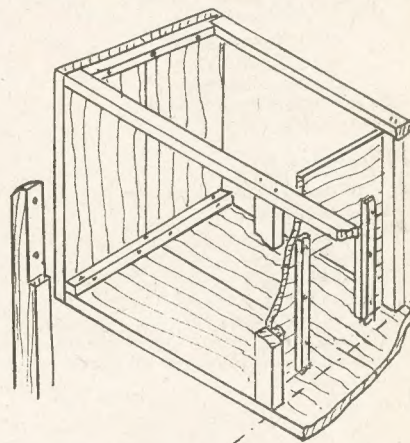


Fig. 2—Interior constructional details

The roof boards can now be nailed over. Let them extend beyond the back and sides by $1\frac{1}{2}$ ins., and over the front 4ins. Wood not thicker than $\frac{1}{2}$ in. will suit very well here, thicker stuff not being necessary. Boards for the back of the hutch, similar wood to the roof boards, can now be cut, but will be fixed on after the legs are fitted, supposing legs are decided upon.

well to glue their edge to edge. Make them a close fit.

Fixing the Doors

The other door is made as a frame of 1in. by 2in. wood, joined together at the corners with a simple halved joint, as in Fig. 3. Glue and nail these joints. Fit both doors with $1\frac{1}{2}$ in. iron butt hinges, and to keep the doors closed, add wood

well to creosote the roof boards.

The final job is to cover the roof with roofing felt. This should be laid over, pulled flat and be well nailed to the edges of the roof. The framed door of the hutch should be covered on the inside with 1in. wire mesh netting. See no sharp cut ends of this wire stick out inside the hutch for the rabbits to scratch themselves on.

From the Editor's Notebook—

THE suggestion for commencing to make a collection of orange wrappers may not seem opportune just now, but over a course of years it may prove interesting and worth while. When oranges were so plentiful and cheap before the war there were those who did collect the paper wrappers, and I find Mr. A. Sandiford of Pembridge, Herefordshire, has enjoyed it for over 50 years. Being a fruiterer he had a big advantage, of course, but since 1892—when he started—he has amassed a collection of many hundreds—pasted neatly in several volumes. One wrapper from Italy shows the monument erected in honour of King Umberto I. Printed on another is a sketch of the contemporary bicycle, with pedals on the front wheel, and supported by a cherubic infant waving a bunch of lemons. A prim young lady holding a tennis racket, and what

must have been the first aeroplane reminds us of early progress in customs and inventions.

ANOTHER collector has gone in for having as many military medals as he can. But he cannot wear them all, because he now has about 320—collected during the past nine years. There can be a great deal of historical interest in them because the inscription gives the campaign concerned, which can lead to finding matter in reference books so to build up a fascinating story. At least it has proved a fascinating hobby to Mr. B. E. Hawkins of Wylds Lane, Worcester.

EIGHTEEN months ago, three men in a Bolton office pulled out their cigarette cases (says *The Bolton Evening News*), and found that, between them,

they had nine different brands of cigarettes. They put one of each variety into a box, and that was the beginning of a hobby which is not only unusual, but which must have its temptations in these times of cigarette shortages. Nevertheless, they have now a collection of 135 different brands, which includes, in addition to the many English varieties, cigarettes from Russia, Eire, the Channel Islands and, of course, America. They include the familiar 'Camel' and 'Lucky Strike', but there are also 'Escudo de luxe', 'Tassie de luxe', 'Fleur de Roi', '12 o'clock', and the Irish 'Sweet Afton' and 'Tantivy'.

DON'T forget an Index to Volume 109, which ended last month can now be obtained for 1/- post free from my office.

The Editor

A few "bits and pieces" can be easily converted into NOVEL HOUSE BOOK-ENDS

It is amazing how well Book-ends look if made up into some form of a house.

All sorts of cottages, log huts or more pretentious finishes can be used, but if a house of some sort is depicted, the effect always seems to be good. A design of the sort is given here.

To make, first cut the base (a) from $\frac{1}{2}$ in. plywood if possible 4 ins. by 5 ins., also the vertical pieces (b) for the end, 5 ins. by 5 ins. This latter can be of thinner material. To go over the back vertical cut the two simple fir trees (c) from $\frac{1}{2}$ in. plywood which can readily be made with a fretsaw.

The Back

The back fits to the base (at a true right-angle please) by three or four small screws, and the fir trees are placed in front as indicated. They can be held by glue and if desired one or two virtually headless gimps.

It is best to 'finish' the ends in parts, as they are put together. The vertical piece should, therefore, be well glass-

the windows, paint in complete rectangle with white first and when dry, outline with black and suggest the curve of the curtains in black also. This, it will be found, gives quite a good vivid effect.

The Roof

For the roof, mix a minute drop of black with a little white on a tin lid will do, which will give a grey. Paint the roof with this and then suggest tiles with black lines.

The chimney is a short rectangle of wood cut as shown and is simply glued to the roof or one side of the stop can be taken off and the chimney fastened by a screw up from below. Before fitting it is given a coat of red, but will be really too small to bother about suggesting brickwork.

Complete, the house is placed before the fir trees and its position pencilled on the base. Paint the

base green and when dry mark in the path from the door in a little of the grey. The sides of the base are also green.

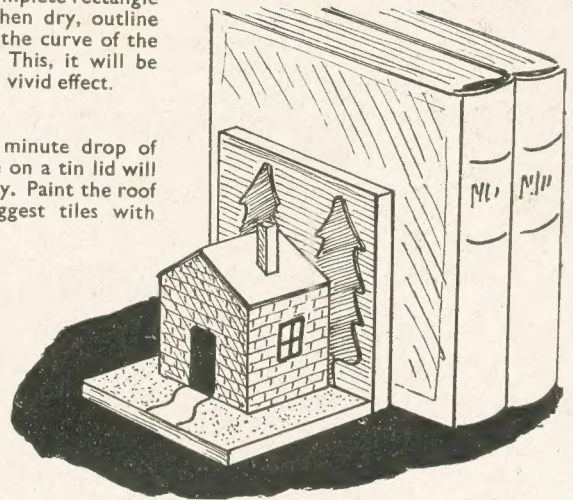
Lastly, put the house in position and secure with two screws in from the back, and up through the base. Make sure of tight contact and true right-angles of base and back. Also fit a sheet of strong tin or zinc on the underside as shown, protruding about 1 in. to catch under the first book. This gives a sturdy hold to an end if even quite light itself.

The Book-end is now complete and the aim has been to give a bright, rather novel-looking article. Of course, a companion is necessary and work can be lessened by making the pair as much as possible together. Thus, the fir trees could be cut two at a time, while, when using a colour for the one end, the same colour could be applied to the corresponding part on the other.

The painting on of the brick courses and tiles is the most effective, but the finish can be quickly put on by pasting brickpaper or stone-paper to the sides, and a roof tiling paper on the sloping top.

Coloured Additions

The window and door must in this



case be drawn on thin card and coloured, and then be glued in the desired position, the items being put under pressure while they dry out. The main thing when attaching paper is to glue the wood well in addition to the back of the paper and then let everything dry under a weight of some kind.

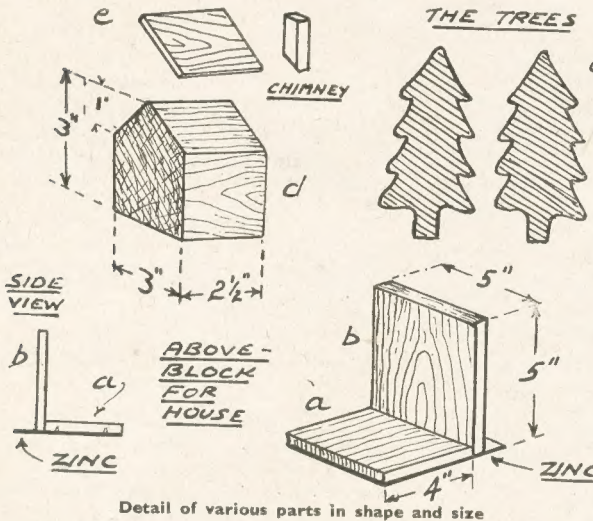
With care, a paper finish like this can be given a coat of clear varnish to obtain the gloss that is given by the direct painting method.

The general surround, too, if desired, can be finished with sand sprinkled over a coat of glue before painting. Indeed, the whole design lends itself to quite a number of interesting variations in the hands of the imaginative craftsman.

Patterns for Two Swinging Toys

This week's gift sheet contains patterns for two novelty swinging bird toys. A kit of wood (No. 2842) is obtainable for both for 3/6 from

Hobbies
Branches or
(with 9d.
extra) by
post from
Hobbies Ltd.
Dereham,
Norfolk.



Detail of various parts in shape and size

papered and smoothed and given a coat of blue enamel. The fir trees are then painted dark green and secured in position; by working this way cleaner colouring is obtained.

The Wooden House

Now make the house (d) from a block of wood 3 ins. by 3 ins. by 2 1/2 ins., bevelled at the top for 1 in. down and with two rectangles of plywood (e) placed on the slope and allowed to overhang at the eaves a trifle.

Colour the whole house, except the roof, pillar-box red and allow to dry. Now pencil in lightly the brick courses as shown and line them in with white enamel, using a fine brush. The door is put in as a black rectangle. Then make

A modern type with practical uses is this simple STATIONERY CABINET

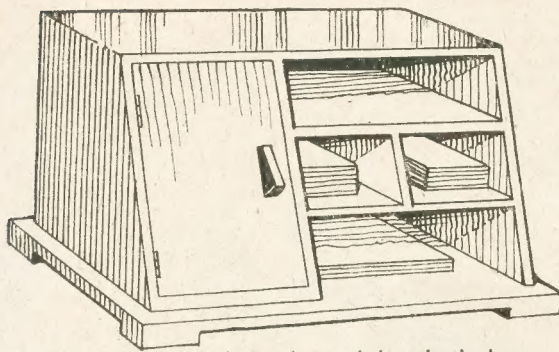


Fig. 1—The door cabinet and open shelves clearly shown

OUR illustration (Fig. 1) shows an attractive form of stationery cabinet with enclosed cabinet combined. The four-compartment stationery cabinet is of useful size, and the whole is of simple and practical construction.

A plain and easily understood diagram of the construction of the cabinet is

cabinets may be in two pieces if desired and fixed to each opening by means of small fillets of wood $\frac{3}{8}$ in. by $\frac{1}{4}$ in. glued round inside, as seen in Fig. 6, which is a rear view of one of the cabinets. The back boards will thus fall flush with the back edges of the uprights.

On the other hand, for simplicity sake, the back may be formed from one board carried right across and still fixed

also of $\frac{3}{8}$ in. wood, and it can be secured with countersunk brass screws.

If a jointed fixing is desired between the uprights and the top (C), open mortises can be cut, as the enlarged detail Fig. 5 shows. This makes a very stiff and firm fixing, but a particularly clean-cut joint must be aimed at if neatness of appearance is a consideration.

The backing to the

Or, again, the two pieces (E) and (F) may be shallow-grooved, as seen in Fig. 7, and partition (G) finally slid between the two after they are fixed in place. Small rails (H) and (I) are next prepared from $\frac{1}{4}$ in. by $\frac{3}{8}$ in. stuff 6 ins. long, and glued as seen in Fig. 2.

The lower one must be planed to a chamfer to fit the floor (A), the top surface running at a right angle to the sloping front so the door will rest between the sides, and at the same time open accurately along the top edge of fillet (H). Fillet (I) is really intended for the door to rest against, and so must be dropped back the thickness of the door from the front edges of the top (C), and the sides (B) (see enlarged detail Fig. 5).

The Door

The door is made from a piece of $\frac{3}{8}$ in. stuff, and careful measurements should be taken direct from the opening, so as to get a good fit. Brass hinges about $\frac{3}{4}$ in. or 1 in. long should be used, and recesses cut in the edge of the door to receive the two flaps of the hinges.

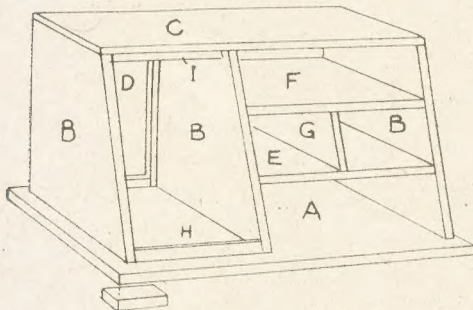


Fig. 2—Showing general construction of framework

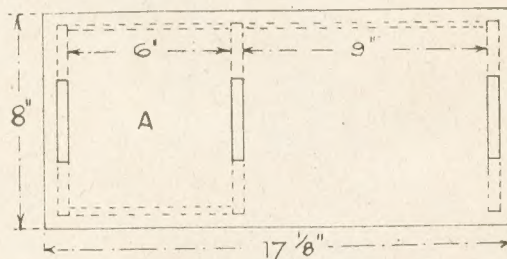


Fig. 3—How to mark out the base

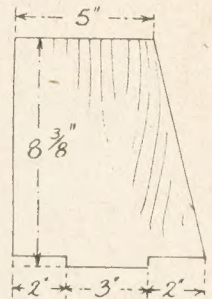


Fig. 4—End shapes

given in Fig. 2, where (A) is the base which must be squared up accurately from a piece of $\frac{3}{8}$ in. stuff. The sides and mid partition (B) should be tenoned into the base, and the plan, Fig. 3, gives the measurements for setting out the three mortises.

As pieces (B) are intended to be $\frac{3}{8}$ in. thick, the mortises should be set out to this width, but when the cutting with the fretsaw is being done, the saw should be kept to the inside of the line. Thus when later the pieces (B) are inserted into their mortises, a tight and secure fit is assured. Four oblong blocks are glued at the corners prepared from $\frac{3}{8}$ in. stuff 2 ins. by 1 in.

Some care must be taken in setting out the three uprights (B) to the outline given in Fig. 4. If the base and its mortises have been prepared as mentioned, then the tenons should be carefully checked for length from these before the cutting actually takes place. Glue the parts together and check the angles inside with a set square or a metal try square.

Next cut and fix the top (C). This is

to fillets on the inside of the ends, and nailed or screwed to the back edge of the middle upright. The latter, it will be understood, must be the thickness of the actual backing board less in width from back to front.

Shelves

The shelves (E) and (F) are next measured and fitted. They may be of $\frac{1}{4}$ in. stuff as desired and glued to bearing fillets put along inside the end (B) and the mid partition. The dividing partition (G) may be previously glued and pinned to (E) and (F) before these latter are actually slid into place between the uprights.

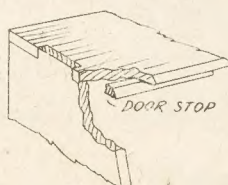


Fig. 5—Door stop rail

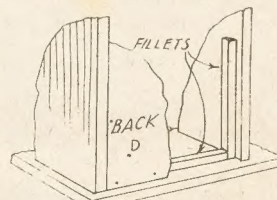


Fig. 6—Backing holders

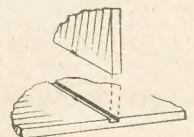


Fig. 7—Grooved upright

Trim off evenly and neatly along the lower edge of the door where it meets the rail (H).

The wood should receive a good glasspapering and a dusting before the stain is applied. A very simple finish to the wood would be a coating of good varnish applied quickly and evenly in a well heated room, so the varnish may run freely. Or you may be able to obtain a bright glossy surface with french polish after the staining.

A modern-type handle for opening the door may be cut from a piece of spare $\frac{3}{8}$ in. wood and glued in place. A screw, perhaps, run in from behind the door will make a secure fixing.

How design parts can add to articles as simple FRETTED DECORATIONS

MOST readers will have accumulated a supply of designs, and wonder sometimes whether they are worth keeping, in view of the fact that it will probably be impossible for them to make all the articles therefrom. How many, however, realise that there are other possibilities of their use besides the actual completion of the whole article for which they are intended.

The use of at least a portion of the design can be made in a pleasing and attractive manner by utilising part of them for other subjects. This is where the selection of the designs on hand will

be applicable to the purpose in hand. The suggestions given here are the ideas and, no doubt, the ingenuity of readers will enable them to utilise their own work, even if not in the actual pattern mentioned.

Pattern Parts

For instance, the lid of an ordinary box can be decorated with a pattern such as you see at Fig. 1. This simple pattern is, you will note, an all-round one. That is, it does not face one particular direction so that it forms an attractive addition

has been reversed to be more in keeping with the subject.

The little rail below (at Fig. 4) is really only a portion of another part of the pattern, and is an illustration of how small parts can be made suitable for other purposes. The pattern itself is cut short at each end as shown by the shaded piece in the detail, and this is added below the mirror to finish it off at the bottom.

This suggestion, of course, can be carried further by seeing what simple portion of an otherwise larger design

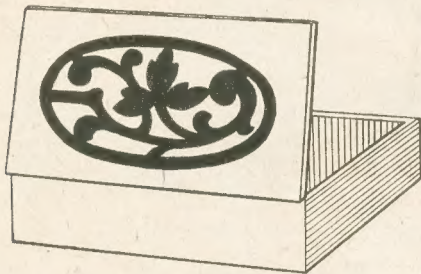


Fig. 1—A simple addition to a box lid



Fig. 2—A clock fret

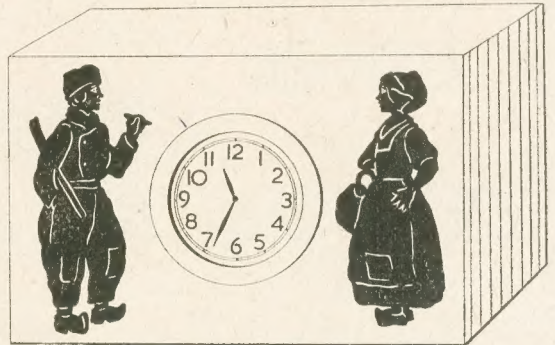


Fig. 3—Figures can be introduced as attractive features

come in to some good purpose, and it is certainly unwise to throw away or dispose of them at all.

The suggestions which follow show a number of instances which if not arising at the moment, may be brought into effect at some time or other, and the idea of using these frets should always be borne in mind. It may be that you have a number of home articles which would look very much more attractive if they had a single piece of fret on the front, top or side.

When you think of it, a plain box can be very greatly improved, for instance, by the addition of a little ornamentation, even if you are not going to complete the whole thing in fretwork. A large flat surface of wood can be relieved either in one place or two or three by the adding of a simple and attractive fret design.

From other Designs

We do not mean to cover the whole of the panels concerned, but merely to add a little decoration which will break up the otherwise flat surface. There are a number of occasions on which these designs can be used, and the suggestions following are taken from some illustrated in the Handbook.

They need not, however, be followed definitely although, of course, they provide suitable subjects, and the designs mentioned can always be obtained. It may be on the other hand, that you have amongst your own collection of designs, certain fretted portions which would be just as ap-

placable to the purpose in hand.

On the other hand, a clock front such as shown at Fig. 2 could very well have either the fretted decoration shown, or could be provided with a figure or outline which is in a definite direction. The figure of the Dutch girl is an example of what can be added if you wish, to a clock front, and this one is taken from Design No. 2458.

Use of Figure Features

If you have a longer clock, you could add the girl at one end and the boy (from the same design) at the other, as a simple outline and as illustrated in Fig. 3. The patterns of these particular figures are about 5½ ins. high and, of course, you must have a suitable clock or similar piece of work on which they would not look too large. In every case, the proportion should be satisfactory, so that the actual fret does not appear to 'overlap' the main article. On the other hand, it must not be too small and look ridiculous when in place. Searching through your designs and measuring them up, can be quite a happy job preparatory to their actual cutting.

Pattern Parts

Again, the pattern shown at Fig. 4 is a simple one, and here you have two portions of Design 2732 where the parts are used above and below a mirror on what would otherwise be a very plain ground. The simple portion at the top is actually the overlay of the Chinese Casket Design, and as you see,

could be utilised for the fretted pieces mentioned, and if taken away from a larger subject can frequently be utilised as small pieces for decoration. There are all manner of things you can incorporate in this way. A glance through the designs in the Handbook or in your own collection, will soon prove productive of results if you bear these matters in mind.

Seasonal Additions

At Christmas time, for instance, if you are making a gift, there are several patterns on which the subject of holly is incorporated. In others, there are various attractive little figures of birds and animals, and even outlines of people themselves which could be incorporated. If the friend to whom you are proposing to give the piece of work is fond of dogs, then there are several of these which could be utilised and the three illustrated at Fig. 5 are taken from Design 238 Special. They can be cut to the outline, suitably painted or carved, and then glued in place on the actual subject taken in hand.

Again, there are a number of handsome carved decorations, or you could incorporate some with a piece of laurel or a leaf effect which will be very pleasing. For instance, if you are making a plain photo frame of a friend who is now dead, the wording 'In Memoriam' from Design 2606 could well be added, and if you wish, a small portion of the laurel pattern on that same design.

None of these frets should be cut in

thick wood, and generally speaking, the thinner they are, the more attractive they will appear. If you can get the millimetre plywood this is excellent, or failing that, $\frac{1}{8}$ in. wood is suitable. In cutting such thin material, however, you must be careful that no breakages occur.

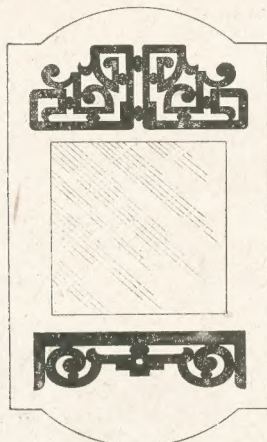


Fig. 4—A fretted decoration cut to fit a frame

For this reason, therefore, it is a good plan to pin the wood to a thicker piece so you have a more solid substance to operate. Watch the direction of the grain so it runs the longest way of the wood, and provides the greatest strength to the material.

Another plan is to sandwich the thin material between two other boards, as this reduces the likelihood of the pattern jumping and getting broken. In cutting such fine work do remember to hold the wood firmly to the table, and with the fingers as close as is feasible to the blade itself.

Hold Work Close

Beginners particularly, have an unfortunate habit of holding the wood rather loosely. In consequence, the saw may catch into the board and lift it and so either break the wood or the fretsaw, or both. There is no need to be afraid of the fretsaw blade if you hold the work very firmly to the cutting table and turn it carefully.

Do not try to force the blade through the material at too fast a rate. Keep the up and down motion of the fretsaw steady and fairly rapid. It is not the actual pressure forward which enables the work to be done quickly, but rather the rapid motion of the blade and a reasonably slow travel into the wood itself.

If you see a professional carpenter, for instance, using a handsaw, he is not driving it hard into the material, but letting it cut its own way through the wood by the teeth biting into the grain. This is the same motion which is required in the fret-cutting rather than an

attempt to force the blade through too quickly and so run the risk of breakage.

Interior Work First

A good plan, too, in these small frets is to do all the interior work before cutting the outside line. This provides a larger piece of board to operate upon, and also reduces the likelihood of the parts being broken where you have to hold the smaller and more delicate pieces. When the part has been cut it should, of course, be cleaned up thoroughly with glasspaper. Do not forget to turn it over and clean the reverse side to take away any slight saw burr which may be there. Keep the work flat on the bench and also use the glasspaper on a block of wood to keep that flat also. Be careful that the edges of the glasspaper do not tear into the pattern.



Fig. 5—Three pleasing dog figures cut from a design pattern

A Gluing Frame

As mentioned, your last cutting operation was round the outer edge of the fretself. Do this in one complete movement if you can, as this will provide a frame into which the fret can be relaid for the glasspaper operation. The outer frame is thus the same height as the fret itself, and will help to hold the whole thing flat and firm while the glasspapering is being undertaken.

The actual cleaned work when ready to be put on the background, should be looked at searchingly to see that everything is correct. Any little corners which want taking out, should be completed either with a file or with a fretsaw before satisfaction is assured.

Then, too, of course, you may want to stain the actual overlay before fitting it in place. This staining need not be to the

same colour as the background. The decoration will probably look better if it is a different shade. If the background is dark, then the overlay can be left reasonably light. If, on the other hand, the background is light, then the overlay could be stained fairly dark.

How to Glue

In gluing, remember to apply the adhesive thinly all over the back of the fret so it is firmly fixed in place. You can do this best by rubbing the glue on with the tip of the finger, having it warm enough to make liquid. The glue should be applied very thinly, and care taken not to rub it over the side so that an unsightly edging of it shows when put in place. Have the position marked in one or two places with pencil so that you can lay the overlay direct in place when the

glue has been added.

Lifting Delicate Parts

The delicate frets can be lifted by means of strong pins or on the point of an awl, laid down straight in place, where they should be, and then held firmly. Put a piece of thin paper over the whole thing, and weight the part down with a pile of books or something similar. Leave until the whole thing has set, then take away the paper covering. If any of it has happened to stick you must, of course, clean off carefully with a sharp knife or small piece of glasspaper.

These suggestions for the use of frets are well worth bearing in mind, for they provide a change of job and one which can be done reasonably quickly with the knowledge they will add considerably to the piece of work when completed.



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Making the most of the first spool of the season in PHOTOGRAPHY

WHAT an extremely interesting month April is for almost everyone and everything! We all realise that nature re-awakens, the spring flowers very plainly illustrate this, as do the birds with their songs and their busy 'business' of nesting. The same revival is also very evident in human beings. Somehow or other, with the coming of Easter, we feel that we must shake ourselves and throw off the lethargic state that has prevailed throughout the winter months and start thinking about the happy and active times in front of us.

Open-air Sports

Cricket, tennis, cycling, hiking and many other sports are beginning to attract attention. To most photographers Easter means the opening of another season of camera work out of doors and from now on it is safe to assume that every week-end till the end of September, thousands of films will be exposed and new batches of negatives will be added to our collections.

It is to be hoped that every reader of *Hobbies Weekly* has taken the advice and made an excursion during March to their local dealers of photographic material and so secured two or three spools of film. If this was left till the Thursday before Good-Friday, then it is doubtful whether those amateurs had any chance of making exposures during the holiday. Because the manufacturers are still unable to give the dealers a full stock or all that they require, although there are signs that bigger supplies will be forthcoming this year. It is a good plan to seek more spools when you have loaded your last one into the camera. Do not wait until that has been completely exhausted.

Choose a Subject

Most old timers of amateur photography will agree that April is the month when it seems difficult to concentrate on any one particular subject. Everywhere appears to be so fresh again, places that appeared so ordinary and commonplace a few weeks ago now present a different appearance. The lighting is so soft, trees are looking fresh and are not so full of leaves, and the flowers simply shout requests to be taken. In fact opportunities for some really artistic and pictorial studies are everywhere.

If, then, you have this in mind, you can be positively certain that even a short walk in the fields or along by the river will provide a variety of scenes or subjects that should give you excellent results for some very pleasant evenings' work in the darkroom in developing and printing.

It would be unwise not to give a note of warning regarding exposure. April

light is very much inclined to vary. It can be very good at about 11 o'clock and by 12 o'clock have changed very considerably. The morning can be just right, but what a change takes place after midday. And, of course, the order can just as easily be reversed with the morning light poor and the afternoon up to about 4 o'clock fairly good.

Occasionally, slight mist is experienced in the early part of the day, but this need not be considered altogether a deterrent, for it can be very helpful in some landscape work. As, for instance, when taking a group of stately elms, oaks,

to develop the film? The writer hopes that most readers have bought a developing tank and intended to use it for this particular film.

Well, if the exposures were correct, then by developing in the tank every one of the results should be perfect. Even if one or two were under or over-exposed, the resulting negatives will still be the best that can be obtained from those exposures. Of course, it cannot be expected that a perfect negative can be obtained from a faulty exposure, but, in order to prevent further errors it is necessary that incorrectly exposed

A picture study of
Chilham on the
Pilgrim Way

The exposure was at
11 o'clock in April,
using an H.P.3 film,
with 2X filter at F11—
1/25 exposure



beeches and similar trees where the sun every now and then manages to break through the mist.

Points to Note

Do not be too close to the group. With an open space in the foreground and the combination of mist, sun and trees there is the making of a picture. Try to calculate the correct exposure time, for otherwise the result will not be up to your expectation. You will probably find that a fairly large stop will give a better rendering.

What about the April showers? Here again is something that should give you food for thought if you are really anxious to get a picture out of the ordinary. If you are still tramping along a country road and are out for tree studies watch the effect of the rain on the leaves. It might be well worth while to wait a few minutes till the sun makes its way through the clouds and shines on those leaves.

Perhaps, if you happen to be in a public highway, the reflections on the wet pavement might intrigue you. Select a suitable spot where both foreground and background are helpful, then wait for one or two persons to come along with umbrellas up. Naturally you should be under shelter in a doorway, with camera set ready to make the shot.

Such are examples of the type of exposures likely to make up the eight or a dozen of your spool. There may not be two very similar, so how do you propose

negatives should receive correct development. This is just what yours will get if the whole film is developed by the time and tank method.

Protect Your Negatives

Before discussing the question of printing from those particular negatives, will you take this piece of advice and so protect them from being scratched or damaged in some other way? Place each one in a separate small envelope; the type can be bought at any stationers shop for a few pence per hundred. On one side of the envelope write the title of the negative, the date it was taken, the stop and exposure time and the time of day if you like, also the developer. If you intend to keep a register, then give it a number, which should be boldly marked in the top left or right hand corner of the envelope.

The reverse side should be kept plain, but ready for all data connected with the printing processes, etc. It is very doubtful whether anyone has ever regretted spending these few minutes in this way. It is a most satisfactory manner in which to preserve the negatives and it enables one to find any particular film in a few seconds if the envelopes are eventually stored in numerical order in a box.

It is correct to assume that only a few amateurs of the present generation are familiar with P.O.P. printing. This is a process that was used by everyone at the end of last and the beginning of this century, but as the paper is presumably

still manufactured and mention has recently been made of it in some advertisements, it will not be altogether out of place briefly to explain it.

Daylight Printing

P.O.P. means Printing-out-paper. A negative is placed in a printing frame, plain side to the glass, and a sheet of the paper is laid face downwards to the negative and the frame clamped. It is then placed in a window where daylight can reach it and printing is gradual, according to the strength of the daylight.

When the stage is reached which shows that the printing is rather too much the paper is removed to a Toning, or a Toning and Fixing, bath for completion. The result is quite a pleasing colour, almost approaching a Sepia, and, if the operation has been properly done, it is permanent. Try to get a packet of paper and make the experiment.

Contact Printing

In these times, however, Gaslight, or as it is best termed, Contact and Bromide printing papers are almost exclusively used by amateurs making their own prints and it is about these that it is advisable to give a few hints. They are both 'developable' papers which means that exposures have to be made in a darkened room, using either an orange or a red light. This does not necessitate a 'pukka' darkroom, however. A warm kitchen, bathroom or even the dining room, if it can be commandeered and the other members of the family do not mind vacating it.

Contact Papers can be obtained in all standard sizes and in various grades and surfaces. The chemicals required are a packet of Metol-Quinol developer and a tin of Acid-fixing. You will, of course, have to have a couple of shallow dishes. Small pie-dishes will answer if you can borrow them and clean them after use. A glass measure and the lamp will also be essential.

How to Print

Printing is as follows. Switch off or black out all white light. Open the packet of paper and remove one sheet. Then put the packet in a drawer or box away from any light which may eventually be switched on. Place the sheet face downwards on a negative which you have already decided to print and which is in position in the frame.

Now place the frame about 12ins. from the illuminant which can be electric, gas or even a paraffin lamp. The exposure time depends on the strength of the light, distance from light, speed of the paper and the density of the negative. You can make the first three factors 'standard' and for the fourth you will be well advised to sort your negatives into three groups, i.e., thin, normal and dense.

For a normal negative and using electric light at a distance of 12ins., give about six seconds for a 40-watt lamp, the same for incandescent gas, and 30 seconds for a duplex-paraffin lamp. You will find that the packet of Metol-

Quinol makes four ounces of solution for contact papers, which should be sufficient for making approximately 3 dozen prints, $3\frac{1}{2}$ by $2\frac{1}{2}$, in one evening.

Washing and Fixing

When the paper has been exposed, place it in one of the dishes and gently pour the developer over it, avoiding air-bells. The image should appear very quickly and be complete in about $1\frac{1}{2}$ minutes. It should then be rinsed quickly under the tap and placed face downwards in the fixing bath. It must be completely submerged and remain there for at least ten to fifteen minutes.

Prints that are under or over-exposed are either too pale or too dark. Only by securing the correct exposure can you expect to get really good results, so it is up to you to judge the density of each negative and keep a record of the time when you are satisfied you have scored the best result possible.

Bromide Work

It is only possible to deal briefly with bromide printing in this chapter. The operation is very similar, indeed, to gaslight. The same chemicals and apparatus and the same lighting, are used, but it must be noted and recognised that all grades of bromide papers are very much faster than any gaslight paper. It follows then that less time is required for exposure, but this would make the process rather difficult of control. So, instead of giving less time, place the printing frame at a distance of 4ft. from the white light (40-watt lamp) and count 10 seconds for a normal negative.

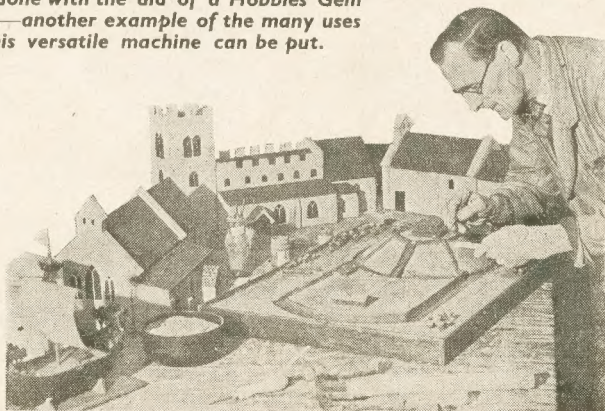
A little practice will soon make you expert at printing and it is hoped that you will, by following these hints, have some excellent results from the 'mixed grill' of April exposures. Bromide paper will be dealt with more fully in an article on enlarging.

A Practical aid to Learning History



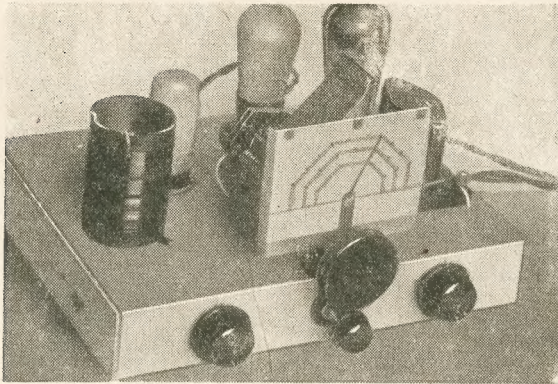
MINIATURE Roman Villas, Georgian mansions, mud huts and igloos are being made in a building which stands on the site of an old Tottenham London castle where Robert Bruce, the spider-watcher, once lived. Soon any school in Middlesex will be able to borrow these models for a county council grant of £750 will make it possible to expand Bruce Castle Museum's visual-aid lending scheme which has previously been limited to Tottenham and certain other districts. A wide variety of museum exhibits will be used

to illustrate such subjects as history, geography and general science. At present the collection available for this purpose includes 10,000 pictures, more than 100 models and about 6,000 natural history specimens. The picture here shows Mr. H. J. Warren the museum technician at work making small parts for some of the models. And, of course, much of his work is done with the aid of a Hobbies Gem Fretmachine—another example of the many uses to which this versatile machine can be put.



(Photographs—Topical Press)

How the radio enthusiast can make this ALL-WAVE STRAIGHT 3



A picture of the Set, without its Cabinet

THOUGH the term 'straight' applied to a receiver strictly includes sets with H.F. stages (e.g., non-superhet receivers) this word has in the past been more often applied to the Detector-L.F. type of circuit. From the constructor's point of view such receivers have the advantage of simplicity. There is no complicated coil switching; nor are there chances of H.F. instability or mis-alignment.

Consequently the circuit lends itself particularly well to the use of home wound coils. A low frequency stage provides a degree of amplification comparable to the H.F. stage often used instead in a 3-valver, especially as the gain from the latter on the short wave bands is quite low.

A Detector-2 L.F. circuit is used in this receiver, and it will be found to give good results on each waveband. On long and medium waves selectivity is naturally less than with the receiver using two tuned circuits, but this difficulty can be minimised by suitable aerial coupling. Short wave results are very good and the lack of complication will be seen from the circuit, which is shown in Fig. 5.

of the chassis. A .25 megohm potentiometer is equally suitable to the value shown.

One of the easily-obtained manufactured chassis about 7ins. by 11ins. by 2ins. deep is most convenient. Fig. 1 shows the layout of the parts on top of the chassis, and any L.F. transformer (ratio about 1:3 or 1:5) for direct coupling can be used. After bolting down the parts the coils should be wound.

The Short Wave Coil

With the .0005 mfd. tuning condenser this covers the most popular wavelengths from 19 metres upwards. The grid winding consists of ten turns of 20 S.W.G. tinned copper wire, each turn spaced from its neighbour by the diameter of the wire. A $\frac{3}{8}$ in. diameter paxolin former is used, and the ends of the windings are secured by being passed through small holes. The tapping for the .00005 mfd. preset condenser is soldered on three turns from the earthed end of the coil, as shown in Fig. 3.

After leaving $\frac{1}{8}$ in. space the reaction

winding is put on. This consists of eight turns of 32 S.W.G. enamelled wire. All turns must be in the same direction as illustrated. The completed coil is mounted about $\frac{1}{2}$ in. from the underside of the chassis by means of a bolt and sleeve.

Medium and Long Coils

Fig. 3 also shows the medium and long wave coil. A 2 in. diameter former is used and 54 turns of 30 D.S.C. wire, turns side by side, makes up the Medium Wave winding. Near the centre an aerial tapping is made. Approximately $\frac{1}{2}$ in. from this coil 45 turns of 36 S.W.G.

COMPONENT LIST

- Coil formers (Coventry Radio).
- Three 4-pin chassis valveholders.
- 0003 mfd. reaction condenser and knob.
- 0005 mfd. tuning condenser and reduction drive.
- 5 megohm potentiometer with switch and knob.
- 4-pole 3-way rotary switch with knob.
- 0002 mfd. and .01 mfd. fixed condensers (mica).
- 10,000 ohm, 50,000 ohm, and 3 megohm resistors ($\frac{1}{2}$ watt).
- 00005 mfd. preset condenser.
- Low frequency coupling transformer for direct coupling.
- 0002 mfd. preset condenser (optional).
- Metal chassis. Two-way tag board.
- Wire, bolts and terminals.

enamelled wire are wound on. A narrow space (about $\frac{2}{30}$ in.) is then left and the Long Wave sections wound on. For these, use 36 S.W.G. D.S.C. wire and put on three piles with 65 turns in each pile.

Actually, the gauges are not very critical, but all turns must be in the same direction. If a dual-range coil with reaction is to hand this can be used. The coil is fixed to the chassis by means of small brackets and connections are taken down inside the former.

Wavechange Switch

Any 4-pole 3-way switch can be used,

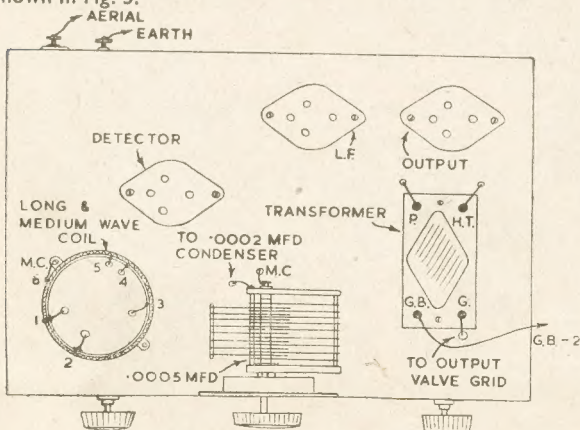


Fig. 1—The top of the chassis layout

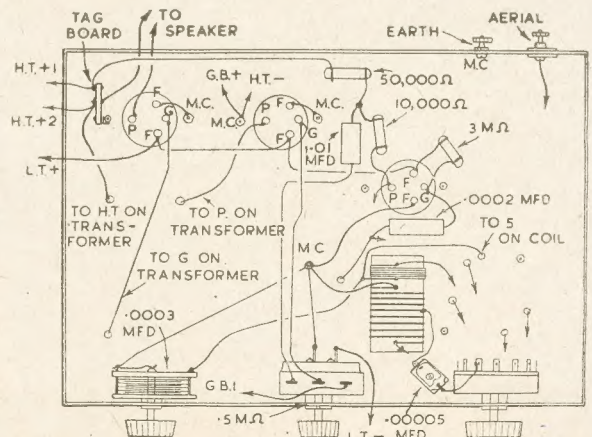


Fig. 2—The underchassis layout and wiring

and all the connections are shown in Fig. 4. The ends of the various coil windings can be taken directly to the switch contacts, insulated sleeving being used to avoid short circuits.

The remainder of the wiring is clearly illustrated in Fig. 2. Points marked 'M.C.' are taken to the metal chassis, bolts and soldering tags being the best method of securing. The small preset condenser is held rigidly between the coil and switch on short connections.

Operating Details

If the wavechange switch is wired as shown, the central position will provide operation on Medium Waves. Long Waves will be obtained by turning to the right, and Short Waves by turning to the left.

The grid bias voltages should be adjusted to the best values, which will probably be about 1.5 or 3 volts for GB1 and 4.5 to 7.5 volts for GB2. HT1 should

be taken to 60 to 90 volts positive. (Different voltages may be tried here to obtain smooth reaction).

The preset condenser may need adjusting as this influences S.W. results. Screwing it down will increase volume but broaden tuning and reduce ease of oscillation. A mid-way position is generally suitable.

A short aerial will give good results, even if indoors. If the aerial is at all long, then a .0001 mfd. condenser should be connected in series with the lead-in.

Alternatively, a .0002 mfd. preset condenser can be used, and this can be adjusted for best long and medium wave operation in the same way as the small preset below the chassis is used for short wave reception.

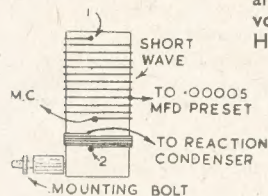
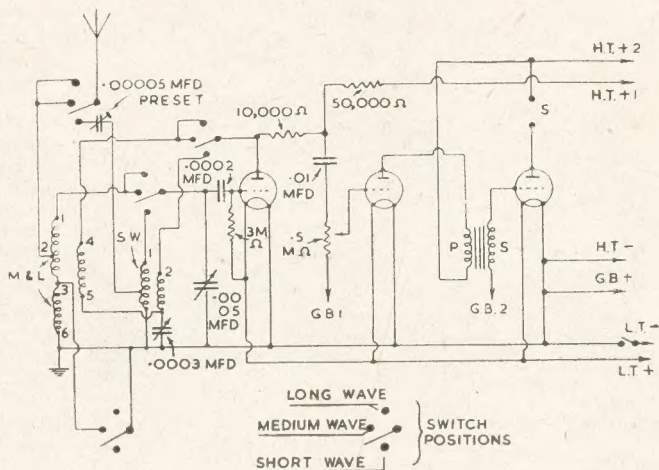


Fig. 3—Tuning coils

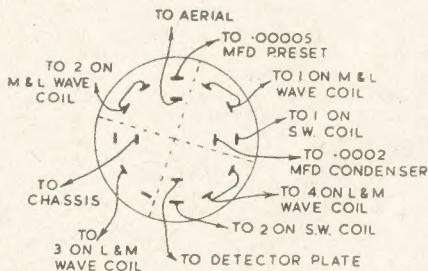


Fig. 4—The wavechange switch wiring

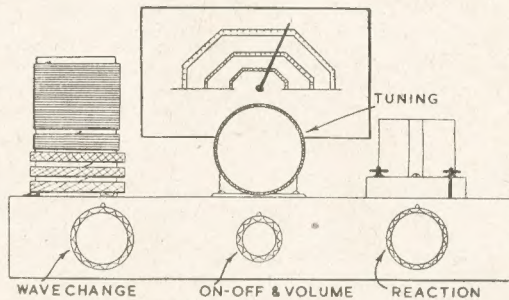


Fig. 6—The front layout of the controls

Making Stone Garden Images

FROM time to time suggestions have been given of how to make those very popular cement garden images of the rabbit, gnome and elf type. These suggestions have covered from the filling and burning off of old celluloid toys to actual fashioning in the true sculptor's style. But most of the ways require some little skill.

Here is a method, however, by which quite effective 'stone' ornaments can be obtained with the minimum of trouble and without any great skill being needed.

The basis of the image is an old discarded toy of the woolly or furry type, although those with a smooth velvety finish can be used just as well. In this class of toy plenty of subjects will be found but, of course, in the main they will be animals, dogs and rabbits, perhaps, heading the list. Penguins, bears and other creatures can be obtained, also dolls of the Sambo persuasion.

To turn the chosen toy into 'stone' it is

necessary to give a succession of coats of cement and as a good drying period has to be given between, the work cannot be rushed.

The cement, which must be mixed fresh each time, is of the consistency of thin paint and it is carefully applied all over the toy with a medium-sized brush.

A Coat of Cement

In the case of a first coat on long-haired toys, care must be taken to get all the fibres well mixed up with cement and finally pressed well home against the body, much in the same way that oiled hair is pressed down on to the head. As subsequent applications of cement will be on a comparatively smooth surface they will not take so long.

When applying the first coat, thoroughly dampen the 'hair' of the animal and keep painting on cement till you are sure that every part has been covered and that no cracks are left anywhere—this being important.

The job completed, put the image in

some airy place to dry for 24 hours. Standing on a piece of wire netting over the open end of a box is good, as this allows the air getting all round and so drying out all parts. Even in this well-ventilated position it is good to keep moving it round.

Five coats of cement in all are given, so the making of the image will take nearly a week, but as the applying of successive coats will not take long the job can be worked in with other things you have on hand. It is quite good to give the base a final sixth coat and leave it in some position other than standing on its base to dry.

Some persons do not like a too new or white appearance in their garden ornamentations and a definitely 'weathered' look can be given by applying boiled linseed oil as a final coat. This, as well as darkening and giving the weather-beaten atmosphere which blends well with most gardens, is a good preservative. Do not have too many images about—only one or two.



The International Exhibition

IN 1940 there would have been, had it not to be abandoned owing to the War, a Stamp Centenary Exhibition from the 6th to the 11th May. That was the centenary of the introduction of the penny postage in Great Britain, and on the front of the prospectus was printed a reproduction of the famous 'Penny Black'.

The Exhibition (May 6th to 13th) which is to take place this year next month is to a great extent following on the postponement of that one. Obviously, however, one cannot in 1950 commemorate the centenary of something which appeared in 1840.

Souvenirs

As this exhibition is called an international exhibition it has been decided to commemorate, not only the stamps of the British Colonies, but also some from abroad. And as 1850 saw the issue of four noted stamps it is proposed to have reproductions of these in colour for sale as souvenirs. The stamps are:—New South Wales, Sydney View 1d. gooseberry red; Victoria 2d. deep lilac; Austria 9 ks. blue; and Spain 6c. black.

The Exhibition is to be held in the Great Room, Grosvenor House, London, and those of our readers who can possibly manage it should visit the Exhibition. They will see many stamps which otherwise they will have little opportunity of seeing. Also they will see how the expert studies his stamps and writes up his collection.

They need not fear, however, they will see only items as far from them as the stars, for there are classes for juniors and seniors and even one for Boy Scouts only.

The Chairman

The Chairman of the Exhibition is Sir John Wilson, Bart. He is the President of the Royal Philatelic Society and also the Keeper of His Majesty King George VI's philatelic collection. Sir John was Chairman of the 1940 Exhibition which was only held in a simplified form at Lancaster House in aid of the Duke of Gloucester's Red Cross and St. John's Fund.

Readers should realise some of the organisation which lies behind the success of an exhibition of this size. For instance in many countries a representative or commissioner has been appointed who is prepared to answer questions for their own countrymen. In some cases they are prepared to take charge of the entries for the exhibition and to bring them to London themselves. The United States, for example, has three representatives, so she is well catered for.

Many firms will be having stands at the exhibition. Naturally there will be more British firms than foreign, though The United States of America, Canada, Paris, Brussels, Torino (Italy) and Basle all appear in the addresses of firms which have taken space. Those who are able to go will be able to see all the latest that concerns the hobby, be it albums, literature or gadgets, whether they come from Gt. Britain, Europe or America.

Accommodation

One very friendly section which is being developed for this exhibition. Those who live within reasonable reach of the building and who can possibly do so are being asked to accommodate a visitor. They are being asked what they can do, such as bed and breakfast, or complete board residence, and at the same time they are asked to state which side of the hobby most interests them. They will then be put in touch with someone who has similar tastes.

Considering the fact that the British Industries Fair will be on at the same time, it is probable that hotel accommodation will be very difficult, so the service projected will be very valuable.

Guides for Parties

Guides are also being arranged to take charge of parties such as School or

Youth Club groups. As there are something like 900 frames to see, it is quite certain that a lot of time will be saved if one can be shown those items which interest most without having to spend a lot of time looking at items which have less appeal.

First of all one can see prestamp items which have been arranged by the Postal History Society. Then one has a chance of seeing stamps of the whole world, but obviously only those who are able to spend more than one day can hope to see all these.

Royal Collection

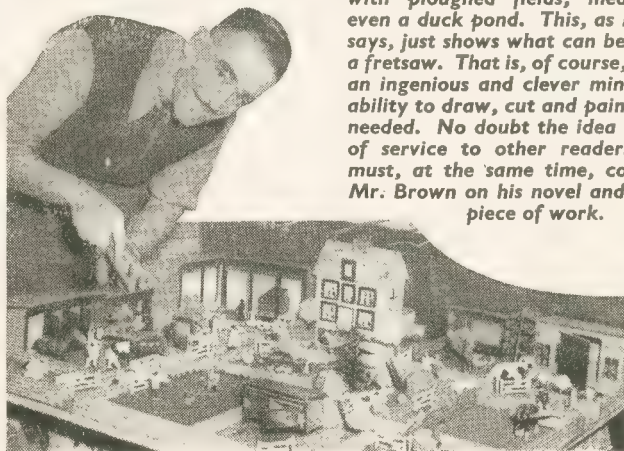
Certain it is that everyone will wish to see the 48 pages from the Royal Collection garnered by the late King George V and also the exhibits that H.M. King George VI has graciously permitted to be put on view.

It is expected that the daily attendance will be as high as 8,000. This should show that the intention of the organisers is to interest more than the expert, and none should be afraid that the exhibition has nothing for them.

We cannot all be philatelists, we may not have the money to buy books, write letters, and go to meetings, but when we have the opportunity of being put on to the correct path, then we should take it, and a shilling or two expended on entry fee is money well spent.

A Realistic Farm-yard Model

HERE is a picture of a realistic and complete Farm-yard as made by one of our enthusiastic readers Mr. T. A. Brown of 28 Quicks Rd., Wimbledon, London, S.W.19, and one of which he can justly be proud. The cottage is lighted by electricity, 13 fields are partitioned by brick walls and all doors are made to open. The whole lay-out occupies a space of 4ft. by 3ft. and included are stables, pigsty, poultry run, barn, cowshed, etc., complete with ploughed fields, meadows and even a duck pond. This, as Mr. Brown says, just shows what can be done with a fretsaw. That is, of course, if you add an ingenious and clever mind, and the ability to draw, cut and paint the parts needed. No doubt the idea may prove of service to other readers, and we must, at the same time, congratulate Mr. Brown on his novel and attractive piece of work.



Photograph by Wimbledon Boro. News.

Concluding details for the handyman constructing A TRAILER CARAVAN

HERE are the concluding details for the Trailer Caravan illustrated in last week's issue, when we also gave particulars of chassis and general framework.

During the daytime when the second bunk forms the backrest, the floor space is increased to allow for a folding table, this being attached to the near side wall. The first bunk is used for storing the bedding, and an air bed or mattress is used on the top in the daytime, to form a comfortable seat.

Wardrobe Space

A wardrobe can be fitted to the near side at the rear, extending along the side for about 20ins. Sufficient space will have to be left for when the second bunk is down, and it should be remembered, that the weight must be kept slightly to the front of the axle, otherwise tail wobble will be experienced when on the road.

Lap joints can be used in most instances, but where three lengths meet such as on the top corners, the down post can be butt-jointed, the strength being obtained from the glued and screwed corner pieces or metal plates. The roof bends are screwed in position. A wooden strip of 1in. by $\frac{1}{2}$ in. should be screwed to the door jamb to form a door stop. The waistline rail is dipped at the front to give a streamline effect to the vehicle; this, of course, is optional.

The wheel arches should be let into the chassis cross members and the down posts should be notched to form ledge joints. The panelling will strengthen the body considerably, but this must not be relied on to keep the thing together. When corner pieces are fitted they should not protrude inside or outside of the framework, so that the panelling is a straightforward job.

Window Frames

Window frames can be made in wood or metal or bought complete ready for fitting. If wood is used, it is an easy matter to rabbet the pieces to the section shown. The corners should be mortised and tenoned and pegged. Before the last side is fitted, the glass should be slipped into position, interposing a thin layer of rubber or Bostik B between the glass and the wood.

Metal frames can be made with a similar section either in extruded aluminium, the corners secured with small countersunk screws, or the sections can be made by riveting together suitably-bent sheet steel. In each case the glass should be sealed in with rubber or Bostik. Ordinary window hinges are screwed or riveted to the top side, and a house type catch can be fitted to the bottom.

If preferred, the type of fastener shown can be used. Two of these will be

needed for each window. After the body panels have been fitted, a drip ledge should be screwed in position just above the window. This can take the form of a length of gutter moulding, inverted or anything similar.

The Floor

The floor is made of $\frac{3}{4}$ in. boards nailed, or preferably screwed to the ash cross members. Since good timber is hard to obtain, rough stuff will do for this job, as it can be later covered with lino. The boards should be carefully fitted round the wheel arches.

Panelling

The outside panelling is of aluminium sheet about 20 S.W.G. The pieces are cut to length and fixed to the frame with $\frac{1}{2}$ in. sprigs. The outside faces of the wheel arches are covered in a similar manner. Half-round moulding is fitted to the side joints and screwed to the framework with $\frac{3}{4}$ in. screws.

Threequarter moulding is used over the front and rear corners; this will be found to bend quite easily. A thin layer of Bostik B between the faces will make the job watertight. The lengths of moulding which go up to the roof should not be fitted until after the roof has been covered.

The inside panelling is, of $\frac{1}{2}$ in. thick Masonite or similar pressed board, this being cheaper than plywood and serving just as well. The panels are fixed with $\frac{1}{2}$ in. sprigs and the joints covered with slats of soft wood about $\frac{1}{2}$ in. by $\frac{1}{2}$ in.

venient point at the front of the caravan.

The roof is covered with $\frac{1}{2}$ in. thick pressed board such as Masonite, and finally covered with canvas. The Masonite board should be jointed along the ash bends and where it joins on to the sides it should be carefully rounded off with a file. When it is assured that there are no sharp edges, the canvas should be tried in position to make sure that it is large enough. The Masonite is then treated with a waterproofing agent such as Bostik C.

While this is still wet, the canvas should be fitted and made secure. It should be tacked to the centre of one side top rail then pulled taut from the opposite side and tacked. The front and rear should be treated in a similar manner. Then work round the caravan, stretching and tacking until the canvas is secured all round and free from creases.

The edges should then be trimmed off with a sharp knife and the guttering screwed in position along both sides, interposing a thin layer of Bostik B to form a watertight joint. A length of half-round moulding should be screwed along the front and rear in line with the guttering.

The Door

The construction of the door takes the form of a rectangular frame of $1\frac{1}{2}$ in. by 1in. ash, with a cross piece in line with the waistline. Lap joints will suffice at the corners. If one is enthusiastic, however, mortise and tenon

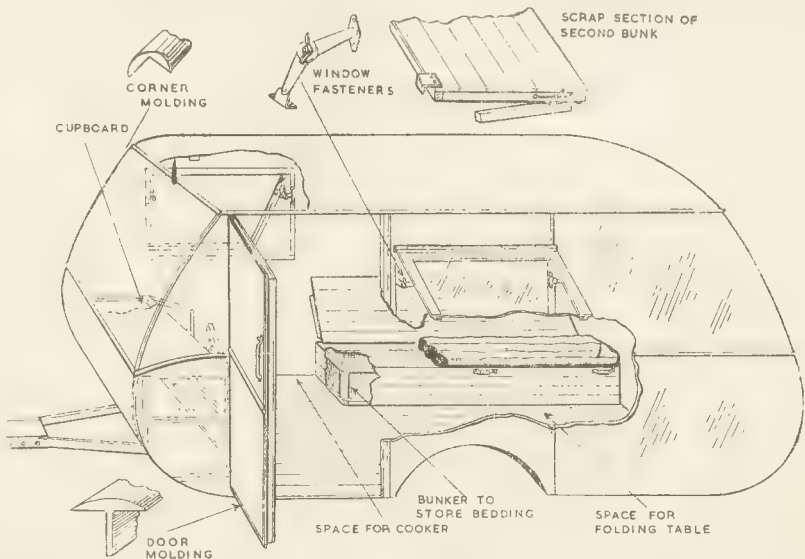


Fig. 4—Cut-away view showing interior fittings and spaces

The wheel arches should be covered with sheet steel about 20 S.W.G. thick. Before the roof and front are lined the wires should be fitted for the roof light, connecting up to a plug at some con-

venient point at the front of the caravan. The aluminium covering can be turned over round the door frame and finished off by edging with the special moulding shown in the drawing.

As an alternative, the edges of the aluminium can be doubled and allowed to protrude about $\frac{1}{2}$ in. over the frame.

The inside of the door is covered with $\frac{1}{2}$ in. pressed board. Before the inside panel is fixed, the door lock should be fitted. A car type lock is suitable where the key fits in the end of the handle. These can often be purchased quite cheaply from the car breakers. A suitable catch plate should be screwed to the door jamb. Coach type hinges can be purchased second-hand or ordinary door hinges can be used. Some form of door stop should be fitted to prevent the door handle denting the front panel of the caravan.

Internal Fittings

The cupboard is made from a light frame of 1 in. square soft wood covered with plywood or pressed board. The top can be finally covered with American cloth or white enamel sheet metal. Shelves, compartments and hooks are fitted to suit one's requirements. There should be facilities provided for storing the pots and pans while travelling. The cupboard is screwed to the body

frame and fitted with two doors, a handle and ball catch.

The fixed bunker is made of $1\frac{1}{2}$ in. by 1 in. soft wood frame 6 ft. by 20 ins. wide by 18 ins. high. The sides are covered with pressed board or matchboard, and the sides should extend above the framework to take the thickness of the top. If pressed board is used for the sides, it must be strengthened round the top with wooden strips.

The top should be strong enough to support several sitting people. It can be made either of $\frac{3}{4}$ in. matchboarding on an 1 in. square frame with two intermediate cross pieces, or with a plywood covering and extra cross pieces. A hand slot should be cut in the top to make for easy removal.

Second Bunk

The second bunk is just a covered frame the same as for the first bunk. This is fitted with three folding legs as shown in the drawing. It also has three hooks equally spaced along the side as shown. These fit into brackets which are screwed on to the first bunk. Safety catches should be fitted to the legs to

prevent them folding under when in use.

Whether a wardrobe is fitted or not depends on requirements. One can make do with a rail screwed to the roof to take coat-hangers. The folding table is simply a piece of plywood on a light frame, hinged to the side of the caravan. The table legs are also hinged.

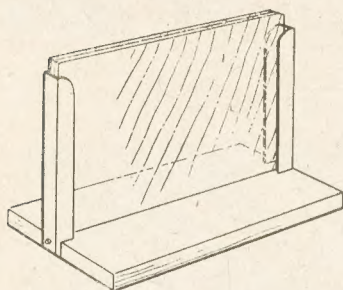
Finishing

The inside should be painted with a priming paint and finished with hard gloss enamel in light shades. Hooks and wires should be fitted for curtains, and a mirror should be fitted over the window. Combined roof lights and switches can sometimes be bought from the car breakers, this saves fitting a separate switch.

The outside should be primed and finished off with enamel to suit the taste. The brakes should be connected up to the brake lever, and a special bar made to fit across the rear of the car in place of the bumper bar. This will need a bracket in the centre to fit the ball joint taper on the hitch.

Your Caravan is now ready to occupy!

Everyday material can be used to make this PHOTO STAND IN METAL



THIS photo stand has the double attraction of being simple to make and also effective when made. It can be made from tin-plate, thin copper or brass, the original being of copper sheet of 24 gauge. The actual width and height of the base and uprights can be made to suit the particular photograph in mind and, therefore, have been left out of the drawings.

Suitable Material

If the reader decides to make it out of tin-plate then it can be made from any large milk tin. It should be painted or enamelled to suit the reader's own taste. If made of copper or brass it should be polished and then covered with either a thin coat of lacquer or varnish, or even a little of the clear nail varnish used by the reader's lady friends.

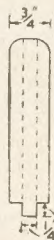
Begin by setting out the three pieces required on to the particular metal being used. It will be easier to see the markings if the metal is covered with a light film of whitening paste. If this is

done the parts can be marked out with a sharp pencil. Using a pencil has the advantage that if a mistake is made it can be rubbed out, but if the marking is done with a metal scribe it may leave scratches that would be difficult to remove.

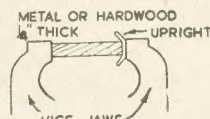
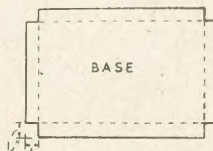
Cutting the Parts

Having marked the parts, the next step is to cut them out. Scissors will cut the tin-plate but proper 'snips' will be needed to cut the copper or brass. Care should be taken in the cutting to keep a little away from the finished line. This is filed off, using a fine file and finally using very fine emery paper to take the 'burr' off the edges.

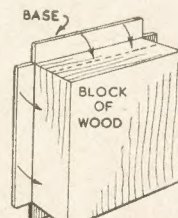
The next thing to do is to bend the parts to shape. This is not very difficult, but it is as well to anneal the copper or brass before doing so. This is done by



Shape of parts needed



Use of a vice



Bending the base

getting the metal red hot and dropping it into water; it will be found that the metal is now much softer and easier to work.

To make the base, bend at the dotted lines with a block of hardwood at the

back, as in the sketch. Take care to form a neat joint at the corners. These corners should be soft-soldered in the case of tin-plate and if possible silver-soldered with copper or brass, although soft solder will do.

Forming the uprights is easy if the reader has a folding bar $\frac{1}{4}$ in. thick, but if not, any piece of $\frac{1}{4}$ in. metal will do. Failing that, a piece of very hard wood a $\frac{1}{4}$ in. thick and about $\frac{1}{2}$ in. wide will do, and should be bent as in the sketch. All bending should be done with a mallet, not with a hammer, unless a piece of wood is placed between the hammer head and the work.

Assembly

Now to fix them together. They can be soldered (hard or soft solder) or soldered and riveted. If riveted it is as well to solder them in place while the

hole is drilled for the rivet. The rivet should be of the metal used for the work in the case of the brass or copper. If the whole is lacquered, as suggested, it will not need cleaning (only dusting) which will mean a lot to the lady of the house.



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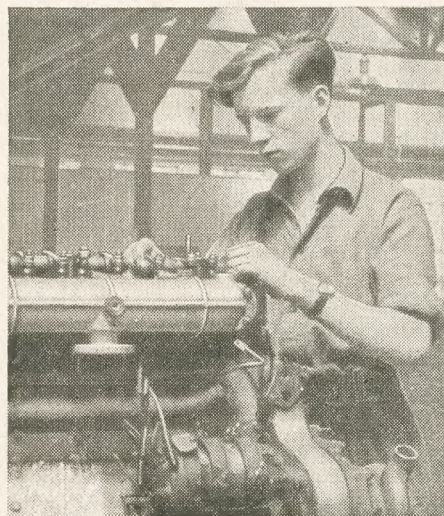
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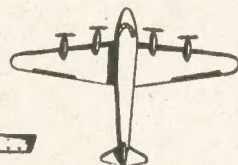
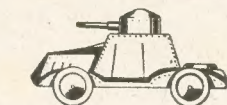
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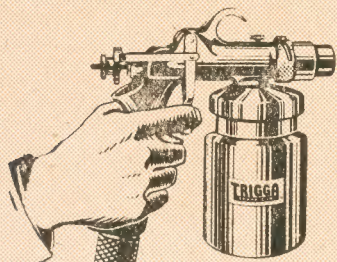


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